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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/510,397

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Hans-Martin Wiedenmann

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KENYON & KENYON LLP
ONE BROADWAY
NEW YORK, NY 10004

EXAMINER

SALZMAN, KOURTNEY R

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

10/09/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/510,397	Applicant(s) WIEDENMANN ET AL.	
	Examiner KOURTNEY R. SALZMAN	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>October 5, 2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Summary

1. This is the first office action on the merits for application 1/510,397. The preliminary amendment filed 10/5/2004 has been entered and fully considered.
2. Claims 1-7 are cancelled. Claims 8-21 are currently pending.

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

4. The specification is objected to as the continuity chain and foreign priority information is not included as the first paragraph of the specification. Appropriate correction is required.
5. The incorporation of essential material in the specification by reference to an unpublished U.S. application, foreign application or patent, or to a publication is improper. Applicant is required to amend the disclosure to include the material incorporated by reference, if the material is relied upon to overcome any objection, rejection, or other requirement imposed by the Office. The amendment must be accompanied by a statement executed by the applicant, or a practitioner representing the applicant, stating that the material being inserted is the material previously incorporated by reference and that the amendment contains no new matter. 37 CFR 1.57(f).

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Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 8-21 are rejected under 35 U.S.C. 103(a) as being obvious over LENFERS et al (DE 198 38 466, rejections are based on US 6301951 as the English equivalent to this document) and EICHLER et al (US 3,949,551).

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Regarding the preamble of claim 8, LENFERS et al teaches an oxygen sensor in an exhaust engine, as stated in the abstract. LENFERS et al teaches in the only figure a Nernst cell (12) with a measurement electrode (16) and reference electrode (18) contained in the reference canal (30). The pump cell (14) has an outer electrode (40) and inner electrode (38) separated from the exhaust gas by the diffusion barrier (22).

Regarding claim 8 limitations, LENFERS et al teaches the application of voltage to a pump cell in c. 3, l. 40-42 (of the English translation of LENFERS et al).

LENFERS et al states the pump voltage being cathodic or anodic to correspond to the lean or rich range of fuel-air ratio in c. 3, l. 42-45, citing cathodic current during lean operation in c. 3, l. 67 – c. 4, l. 1. This obviously causes anodic current to flow during rich operation. LENFERS et al teaches a rich drift to occur during lean conditions (c. 3, l. 67 – c. 4, l. 9) which is offset by reverse polarity pulses of the pump voltage in c. 4, l. 18-26.

LENFERS et al fails to teach the engine to be in lean operation during the warm-up phase or during the duration of a secondary fuel injection.

EICHLER et al teaches in figure 3 and in column 2, lines 13-16 for the engine and in turn the sensor to be in the lean phase during warm up.

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Because LENFERS teaches that the reverse polarity pulses eliminates polarity on the electrodes during extended periods of lean operation (c. 4, l. 44-47), then it would have been obvious to one possessing ordinary skill in the art at the time the invention was being made to also utilize these pulses during other extended periods of lean operation, such as the during an initial warm-up lean operation like shown by EICHLER, so as to prevent the polarization of the electrodes during these other lean operations as well.

Regarding claim 9, LENFERS et al explains in c. 3, l. 59-67 that while the pump voltage is at a constant amplitude, a timer responds with a signal. The timer controls the pulse width, via the switching means, before reversal of polarity provided. (c. 4, l. 20)

Regarding claim 10, LENFERS et al teaches in column 4, lines 26-32 the time ranges and pulse applications to be dependent on the voltage. Therefore, if the pulse time is set, the voltage would need to vary, to maintain accurate readings.

Regarding claims 11-16, the manipulation of the frequencies are said to be variable in column 4, lines 32-36 of LENFERS et al. Therefore, it would be obvious to one of ordinary skill in the art to operate the pulses with a frequency which will best depolarize the electrode, decreasing the rich drift.

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Regarding claims 17-19, it would be obvious to one of ordinary skill in the art for the temperature of the engine and in turn the exhaust gases and sensor to increase in temperature as the engine warms up.

Regarding claims 20 and 21, LENFERS et al teaches in claims 4 and 6 for the reversal of polarity to occur during predominate anodic currents (rich operation as defined in the above rejection of claim 8) in claim 4 and cathodic currents (lean operation as defined in the above rejection of claim 8) in claim 6. It would be obvious for operation to continue during both operation conditions.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KOURTNEY R. SALZMAN whose telephone number is (571)270-5117. The examiner can normally be reached on Monday to Thursday 6:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kaj K Olsen/
Primary Examiner, Art Unit 1795
October 9, 2008

hrs
9/26/2008